

REMARKS

In the non-final Office Action, the Examiner rejects claims 1, 3-4, 8, 16-17, 22-26, and 36-40 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al. (U.S. Patent No. 6,721,371) in view of YASUDA (U.S. Patent No. 6,466,913); rejects claims 5-7, 13, 27-29, and 33 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al. in view of YASUDA, and further in view of QUIGLEY et al. (U.S. Patent No. 6,650,624); rejects claims 14-15 and 34-35 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al. in view of YASUDA, further in view of QUIGLEY et al., and still further in view of PEYROVIAN (U.S. Patent No. 5,768,682); and rejects claims 9-10, 12, and 30-32 under 35 U.S.C. § 103(a) as unpatentable over BARHAM et al. in view of YASUDA, further in view of QUIGLEY et al., and still further in view of Applicant's admitted prior art in Fig. 17(A). Applicant respectfully traverses these rejections.

By way of this Amendment, Applicant amends claims 1, 4, 17, 24, 26, and 38 to improve form. No new matter has been introduced by way of the present amendment. Claims 1, 3-10, 12-17, and 22-40 remain pending in the present application.

Rejection under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

Claims 1, 3, 4, 8, 16, 17, 22-26, and 36-40 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BARHAM et al. in view of YASUDA et al. Applicant respectfully traverses this rejection.

Independent claim 1 is directed to a method for provisioning multiple digital receivers. The method includes providing an analog to digital converter having an analog input and a digital output; providing a plurality of digital receivers, each receiver having a programmable center frequency, where the plurality of digital receivers are to receive

digitized samples from the analog to digital converter and where each of the plurality of digital receivers includes a low-pass digital filter; maintaining pre-computed sets of filter coefficients in non-volatile storage, each set corresponding to one of the plurality of low-pass digital filters, each filter having one of a predetermined set of bandwidths; receiving a request to provision a selected one of the plurality of digital receivers; selecting a first center frequency and a first bandpass bandwidth for provisioning the selected one of the plurality of digital receivers; retrieving the filter coefficients associated with the first bandpass bandwidth; subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency; and loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers. BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, BARHAM et al. and YASUDA et al. do not disclose or suggest subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency. The Examiner appears to admit that BARHAM et al. does not disclose this feature and relies on col. 7, lines 1-9, and col. 7, line 50-col. 8, line 18, of YASUDA et al. as allegedly disclosing this feature (Office Action, p. 5). Applicant respectfully disagrees with the Examiner's interpretation of YASUDA et al.

At col. 7, lines 1-10, YASUDA et al. discloses:

The ADC 311 inputs an analog right-channel sound signal (R CH INPUT), and converts the input signal into a digital signal. The ADC 311 supplies the digital signal to each of the inputs of the FIR filter 312a and the FIR filter 312b. The coefficient buffer 313a stores filter coefficients of the FIR filter 312a which are read from the coefficient ROM 302 and transmitted by the CPU 301. The coefficient buffer 313b stores filter coefficients of

the FIR filter 312b which are read from the coefficient ROM 302 and transmitted by the CPU 301.

This section of YASUDA et al. discloses that filter coefficients are read from a coefficient ROM 302 by a CPU 301 and transmitted to a coefficient buffer 313a. This section of YASUDA et al. in no way discloses or suggests subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. In fact, this section of YASUDA et al. does not disclose or suggest subjecting retrieved coefficients to any sort of transformation, let alone a bandpass transformation corresponding to the first center frequency. In YASUDA et al., the coefficients that are read from the coefficient ROM 302 are merely transmitted to a coefficient buffer 313a – no transformation of these coefficients occurs. Moreover, Applicant respectfully submits that reading and transmitting filter coefficients are not equivalent to subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1.

At col. 7, line 50-col. 8, line 9, YASUDA et al. discloses:

In the above-mentioned system of FIG. 4, the CPU 301 reads filter coefficients of the right-channel FIR filters 312a and 312b from the coefficient ROM 302 in accordance with the localization shift signal, and transmits the filter coefficients to one of the coefficient buffers 313a and 313b alternately. At the same time, the CPU 301 reads filter coefficients of the left-channel FIR filters 322a and 322b from the coefficient ROM 302 in accordance with the localization shift signal, and transmits the filter coefficients to one of the coefficient buffers 323a and 323b alternately. If the FIR filter 312a has already output the localized sound signal based on the previous filter coefficients in the coefficient buffer 313a, the FIR filter 312b outputs the localized sound signal based on the new filter coefficients in the coefficient buffer 313b. The fader 315 serves to make the previous-coefficient-based localization sound signals to fade out within a cross-fade period and to simultaneously make the new-coefficient-based localization sound signals to fade in within the cross-fade period. Similarly, if the FIR filter 322a has already output the

localized sound signal based on the previous filter coefficients in the coefficient buffer 323a, the FIR filter 322b outputs the localized sound signal based on the new filter coefficients in the coefficient buffer 323b. The fader 325 serves to make the previous-coefficient-based localization sound signals to fade out within the cross-fade period and to simultaneously make the new-coefficient-based localization sound signals to fade in within the cross-fade period.

This section of YASUDA et al. discloses that filter coefficients are read from a coefficient ROM 302 in accordance with a localization shift signal by a CPU 301 and transmitted to coefficient buffers 322a, 322b, 323a and 323b. This section of YASUDA et al. in no way discloses or suggests subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. In fact, like the previously cited section of YASUDA et al., this section of YASUDA et al. does not disclose or suggest subjecting retrieved coefficients to any sort of transformation, let alone a bandpass transformation corresponding to the first center frequency. In YASUDA et al., the coefficients that are read from the coefficient ROM 302 are merely transmitted to a coefficient buffer 313a – no transformation of these coefficients occurs. Moreover, Applicant respectfully submits that reading and transmitting filter coefficients are not equivalent to subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1.

Furthermore, in reference to YASUDA et al., the Examiner alleges (Office Action, p. 2):

Yasuda clearly discloses the CPU 301 selects filter coefficients according to localization shift signal. One set of coefficients corresponds to one FIR filter. Once the coefficients of a FIR filter are selected, the characteristic of the filter is set, such as transfer function of the filter, center frequency, cutoff frequency, and amplitude of the response signal. Therefore, Yasuda

discloses the claimed limitation retrieving the filter coefficients associated with the first bandpass bandwidth (see col. 7, lines 1-9, 50-67; col. 8, lines 1-[18]; Fig. 4). . . .

In essence, the Examiner alleges that a CPU 301 selecting a filter coefficient and setting the function of a FIR filter using that filter coefficient are the equivalent of subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, as recited in claim 1. Applicant respectfully submits that the Examiner's allegation completely omits (i.e., does not address) the claimed feature, subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, and renders moot the Examiner's allegation regarding another claimed feature, loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers.

Applicant respectfully submits that merely "selecting" a filter coefficient and "setting" a function of a FIR filter, as alleged by the Examiner, do not disclose or suggest subjecting the retrieved coefficients to a bandpass transformation. Subjecting a retrieved coefficient to a bandpass transformation, as recited in claim 1 involves more than merely "selecting" the coefficient. Claim 1 recites that a retrieved coefficient is subjected to a bandpass transformation – a feature that is neither addressed by the Examiner, nor disclosed or suggested by YASUDA et al.

In this sense, Applicant respectfully submits that subjecting the retrieved coefficients to a bandpass transformation has not been addressed by the Examiner. If the Examiner disagrees, Applicant respectfully requests that the Examiner specifically explain how one of ordinary skill in the art would construe the "selecting" and/or "setting" functions alleged by the Examiner as disclosing or suggesting subjecting the

retrieved coefficients to a bandpass transformation. Applicant further requests that the Examiner explain how one of ordinary skill in the art would read YASUDA et al., particularly the cited sections of YASUDA et al., as disclosing or suggesting the above feature.

Furthermore, Applicant respectfully submits that the Examiner's allegation with regard to the above feature renders moot the Examiner's allegation that YASUDA et al. discloses loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers. The Examiner's allegation with regard to both of these features includes transmitting coefficients to coefficient buffers. *See* Office Action, p. 2 (citing YASUDA, et al., col. 7, lines 1-9; col. 7, line 50-col. 8, line 18); *see also* Office Action, p. 5.

With regard to loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers, as also recited in claim 1, the Examiner alleges (Office Action, p. 5):

loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers (e.g., loading a set of coefficients to FIR filter buffer; Fig. 4) (see col. 7, lines 1-9, 50-67).

As mentioned above, here the Examiner alleges that "loading a set of coefficients to [a] FIR filter buffer" is equivalent to loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers. However, the Examiner has already alleged that this loading a set of coefficients to FIR filter buffer is equivalent to subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, and has cited the same sections of YASUDA et al. as disclosing these two features of claim 1 (Office Action, pp. 2, 5). Therefore,

Applicant respectfully submits that the Examiner's allegation with regard to the claimed feature, subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, renders moot the Examiner's allegation with regard to the claimed feature, loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers, as recited in claim 1. As such, Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness with respect to claim 1.

Since BARHAM et al. and YASUDA et al. do not disclose or suggest subjecting the retrieved filter coefficients to a bandpass transformation corresponding to the first center frequency, BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination, cannot disclose or suggest loading the transformed filter coefficients into coefficient latches in the selected one of the plurality of digital receivers, as also recited in claim 1.

For at least these reasons, Applicant submits that claim 1 is patentable over BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claim 1 under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

Claims 3, 4, 8, 16, 17, 22, and 23 depend from claim 1. Therefore, Applicant submits that these claims are patentable over BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 1. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 3, 4, 8, 16, 17, 22, and 23

under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al. Moreover, these claims are patentable over BARHAM et al. and YASUDA et al. for reasons of their own.

For example, claim 8 recites that the analog to digital converter, the plurality of digital receivers, and the non-volatile storage (for maintaining the pre-computed sets of filter coefficients) are implemented on a single integrated circuit. The Examiner relies on col. 3, lines 53-55, col. 4, lines 45-50, and col. 5, lines 49-57 of BARHAM et al. for allegedly disclosing this feature (Office Action, pp. 6-7). Applicant respectfully disagrees with the Examiner's interpretation of BARHAM et al.

At the outset, Applicant note that Applicant's previous Amendment, filed December 1, 2008, included a traversal to the same exact rejection. Applicant believes that the Examiner has not considered and substantively responded to Applicant's remarks with respect to claim 8. *See* MPEP, § 707.07(f). Therefore, Applicant respectfully requests that the Examiner fully consider the following remarks regarding claim 8, and that the Examiner reconsider and withdraw the rejection of claim 8 under § 103(a) based on BARHAM et al. and YASUDA et al.

Applicant is confused as to the basis for the Examiner's rejection. In rejecting claim 1 (from which claim 8 depends), the Examiner admits that BARHAM et al. does not disclose or suggest "maintaining filter coefficients in storage" (Office Action, p. 4). Accordingly, Applicant submits that the Examiner cannot reasonably rely on BARHAM et al. for disclosing that the analog to digital converter, the plurality of digital receivers, and the non-volatile storage (which maintains the filter coefficients) are implemented on a single integrated circuit, as recited in claim 8. It would seem that, if BARHAM et al. does not disclose non-volatile storage for maintaining the filter coefficients, then

BARHAM et al. cannot reasonably be construed to disclose that the analog to digital converter, the plurality of digital receivers, and the non-volatile storage (which maintains the filter coefficients) are implemented on a single integrated circuit.

The Examiner appears to suggest that the bank or array of IC demodulators 10 correspond to this feature (Office Action, p. 7). Col. 3, lines 53-55, of BARHAM et al. discloses a bank or array of IC demodulators 10, where one of the demodulators is designated as the master or first demodulator 10A. Col. 4, lines 45-50 of BARHAM et al. discloses that the coherent processor and the weight processor components are linked with the coherent memory to provide wide configurability through a programmable input port. Col. 5, lines 49-57 of BARHAM et al. discloses that each RADIS 10 includes a front end 12 that performs DC removal, phase shifting, accumulation, and down-sampling of the input IQ signals. The output of the front end 12 is applied to the FIR filter 14. This section also discloses that a set of registers form a weight stack ring coupled to an external processor.

Contrary to the Examiner's allegations, these sections of BARHAM et al. do not disclose or even remotely suggest that the analog to digital converter, the plurality of digital receivers, and the non-volatile storage for maintaining the pre-computed sets of filter coefficients are implemented on a single integrated circuit, as recited in claim 8. In fact, no disclosure of a non-volatile storage for maintaining the filter coefficients is provided in BARHAM et al.

The disclosure of YASUDA et al. does not remedy this deficiency.

For at least these additional reasons, Applicant submits that claim 8 is patentable over BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable

combination. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claim 8 under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

Independent claim 24 recites features similar to (yet possibly of different scope than) features described above with respect to claim 1. Therefore, Applicant submits that claim 24 is patentable over BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination, for at least reasons similar to reasons set forth above with respect to claim 1. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claim 24 under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

Claims 25, 26, and 36-40 depend from claim 24. Therefore, Applicant submits that these claims are patentable over BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination, for at least the reasons set forth above with respect to claim 24. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 25, 26, and 36-40 under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al. Moreover, these claims are patentable over BARHAM et al. and YASUDA et al. for reasons of their own.

For example, claim 36 recites features similar to (yet possibly of different scope than) features described above with respect to claim 8. Therefore, Applicant submits that claim 36 is patentable over BARHAM et al. and YASUDA et al., whether taken alone or in any reasonable combination, for at least reasons similar to reasons set forth above with respect to claim 8. Accordingly, Applicant respectfully requests that the Examiner

reconsider and withdraw the rejection of claim 36 under 35 U.S.C. § 103(a) based on BARHAM et al. and YASUDA et al.

***Rejection under 35 U.S.C. § 103(a) based on
BARHAM et al., YASUDA et al., and QUIGLEY et al.***

Claims 5-7, 13, 27-29, and 33 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BARHAM et al. in view of YASUDA et al., and further in view of QUIGLEY et al. Applicant respectfully traverses this rejection.

Claims 5-7 and 13 depend from claim 1. Without acquiescing in the rejection of claims 5-7 and 13, Applicant respectfully submits that the disclosure of QUIGLEY et al. does not remedy the deficiencies in the disclosures of BARHAM et al. and YASUDA et al. set forth above with respect to claim 1. Therefore, Applicant submits that claims 5-7 and 13 are patentable over BARHAM et al., YASUDA et al., and QUIGLEY et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 5-7 and 13 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., and QUIGLEY et al.

Claims 27-29 and 33 depend from claim 24. Without acquiescing in the rejection of claims 27-29 and 33, Applicant respectfully submits that the disclosure of QUIGLEY et al. does not remedy the deficiencies in the disclosures of BARHAM et al. and YASUDA et al. set forth above with respect to claim 24. Therefore, Applicant submits that claims 27-29 and 33 are patentable over BARHAM et al., YASUDA et al., and QUIGLEY et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 24. Accordingly, Applicant respectfully

requests that the Examiner reconsider and withdraw the rejection of claims 27-29 and 33 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., and QUIGLEY et al.

***Rejection under 35 U.S.C. § 103(a) based on
BARHAM et al., YASUDA et al., QUIGLEY et al., and PEYROVIAN***

Claims 14, 15, 34, and 35 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BARHAM et al. in view of YASUDA et al., in further view of QUIGLEY, et al., and further in view of PEYROVIAN. Applicant respectfully traverses this rejection.

Claims 14 and 15 depend from claim 5. Without acquiescing in the rejection of claims 14 and 15, Applicant respectfully submits that the disclosure of PEYROVIAN does not remedy the deficiencies in the disclosures of BARHAM et al., YASUDA et al., and QUIGLEY et al. set forth above with respect to claim 5. Therefore, Applicant submits that claims 14 and 15 are patentable over BARHAM et al., YASUDA et al., QUIGLEY et al., and PEYROVIAN, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 5. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 14 and 15 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and PEYROVIAN.

Claims 34 and 35 depend from claim 27. Without acquiescing in the rejection of claims 34 and 35, Applicant respectfully submits that the disclosure of PEYROVIAN does not remedy the deficiencies in the disclosures of BARHAM et al., YASUDA et al., and QUIGLEY et al. set forth above with respect to claim 27. Therefore, Applicant

submits that claims 34 and 35 are patentable over BARHAM et al., YASUDA et al., QUIGLEY et al., and PEYROVIAN, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 27. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 34 and 35 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and PEYROVIAN.

**Rejection under 35 U.S.C. § 103(a) based on BARHAM et al.,
YASUDA et al., QUIGLEY et al., and Applicant's Allegedly Admitted Prior Art**

Claims 9, 10, 12, and 30-32 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BARHAM et al. in view of YASUDA et al., further in view of QUIGLEY et al., and further in view of Applicant's allegedly admitted prior art in FIG. 17(A). Applicant respectfully traverses this rejection.

Claims 9, 10, and 12 depend from claim 5. Without acquiescing in the rejection of claims 9, 10, and 12, Applicant respectfully submits that Applicant's Fig. 17(A) does not remedy the deficiencies in the disclosures of BARHAM et al., YASUDA et al., and QUIGLEY et al. set forth above with respect to claim 5. Therefore, Applicant submits that claims 9, 10, and 12 are patentable over BARHAM et al., YASUDA et al., QUIGLEY et al. and Applicant's Fig. 17(A), whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 5. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 9, 10, and 12 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and Applicant's Fig. 17(A).

Claims 30-32 depend from claim 27. Without acquiescing in the rejection of claims 30-32, Applicant respectfully submits that Applicant's Fig. 17(A) does not remedy the deficiencies in the disclosures of BARHAM et al., YASUDA et al., and QUIGLEY et al. set forth above with respect to claim 27. Therefore, Applicant submits that claims 30-32 are patentable over BARHAM et al., YASUDA et al., QUIGLEY et al., and Applicant's Fig. 17(A) whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 27. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 30-32 under 35 U.S.C. § 103(a) based on BARHAM et al., YASUDA et al., QUIGLEY et al., and Applicant's Fig. 17(A).

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests the withdrawal of the outstanding rejections and the timely allowance of this application.

As Applicant's remarks with respect to the Examiner's rejections are sufficient to overcome these rejections, Applicant's silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such assertions (e.g., whether a reference constitutes prior art, reasons to modify a reference and/or reasons to combine references, etc.) is not a concession by Applicant that such assertions are accurate or such requirements have been met, and Applicant reserves the right to analyze and dispute such assertions/requirements in the future.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the

filing of this paper, including extension of time fees, to Deposit Account No. 50-1070
and please credit any excess fees to such deposit account.

Respectfully submitted,

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Date: May 1, 2009

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